Guidelines for Collection and Submission of WNV Specimens

Who should be tested for WNV?

- Patients with severe flu-like illness, meningitis/encephalitis, or acute flaccid paralysis

Testing Recommendations

	Clinical Criteria	Epidemiological Criteria
Do not test	Asymptomatic patients	N/A
Recommend testing at reference laboratory	Non-hospitalized West Nile fever patients: • Fever • Headache • Arthralgias • Myalgias • Fatigue With or without: • Maculopapular rash • Lymphadenopathy West Nile neuroinvasive patients: • Meningitis • Encephalitis • Acute flaccid paralysis	Appropriate exposure history • Mosquito bites • Travel to endemic area • Outside dusk to dawn Seasonality: summer to early fall
Recommend testing at UPHL	Patients hospitalized with: • Meningitis (fever, stiff neck, severe headache) • Encephalitis (fever, severe headache, possible mental confusion, convulsions, coma) • Acute flaccid paralysis (muscle weakness or paralysis) West Nile fever patients: only available upon consult with UDOH Office of Epidemiology (1-888-EPI-UTAH)	Appropriate exposure history • Mosquito bites • Travel to endemic area • Outside dusk to dawn Seasonality: summer to early fall Rule-out of other typical neuroinvasive etiologies Detection of WNV activity in non-human populations

LHD Response to Test Request at UPHL

If a physician calls in with a case that meets the criteria to be tested at the UPHL:

1. Fill out the morb card and viral meningitis/encephalitis form and report to UDOH or appropriate LHD

2. Have physicians/lab fill out the appropriate test request form in the UPHL Client Services Manual and refer them to the manual for specimen collection and shipping specifications
3. Have physicians document on the test request form the name of the local health department personnel with whom they consulted
4. Mail specimen to:
   Utah Public Health Laboratory
   Attn: Immunology
   46 North Medical Drive
   Salt Lake City, UT 84113
5. Upon notice of an IgM+ specimen from either a reference laboratory or the UPHL fill out the WNV case investigation (long) form and forward to UDOH Office of Epidemiology (short form will be used dependent on human case load)

Recommended Specimens for WNV Testing

	Reference Laboratory	UPHL
Availability	Upon request at: • Quest Diagnostics • LabCorp • ARUP Laboratories Tests available: ELISA, IFA, PCR, DFA	Consultation with LHD or UDOH Epidemiology required prior to submitting specimens Tests available: IgM ELISA; PCR (for immunocompromised patients only)
Patient Prep	See specific recommendations	Symptoms, vaccinations, travel history
Specimen	• CSF • Serum • Tissue	• CSF • Serum • Tissue (only available upon consult with UDOH)
Processing	See specifications of reference lab	Serum: refrigerate (freeze if transport delayed) CSF: room temperature (refrigerate if transport delayed)
Collection Container	Serum: Red-topped tubes or serum separators, spin prior to transport CSF: collect as per established protocol of institution Tissue: see recommendations from specific reference lab	Serum: Red-topped tubes or serum separators, spin prior to transport CSF: collect as per established protocol of institution
Time Consideration	Transport as soon as possible	Within 12 hours of collection
Label	• See recommendations of reference lab	• Patient's full name or unique identifier • Collection date • Date of symptom onset
Forms	• See recommendations of reference lab	• Immunology/Serology Test Request Form

Approximate Turnaround Time	• Varies according to lab	72 hours after receipt
Results	• Detected • Not detected • Ranges vary according to lab	• Detected (by IgM ELISA) • Not detected (by IgM ELISA)
Additional Information	Acute serum should be drawn 7-10 days after symptom onset. A negative acute specimen does not rule out presence of virus. A convalescent sample must be drawn >28 days after symptom onset	Acute serum should be drawn 7-10 days after symptom onset. A negative acute specimen does not rule out presence of virus. A convalescent sample must be drawn >28 days after symptom onset St. Louis encephalitis ELISA will be performed on positive IgM specimens to determine flavivirus specificity
Contact	Varies according to reference lab	Immunology Section Annete Atkinson 801-584-8454 Tom Sharpton 801-584-8235 Barb Jepson 801-584-8400

A case is laboratory confirmed if one of the following criteria are met

West Nile fever	• 4-fold or greater change in WNV specific serum antibody titer • Isolation of WNV from tissue, blood, CSF, or other body fluid • WNV-specific IgM antibodies demonstrated in serum and confirmed in the same or later specimen
West Nile meningitis/encephalitis	• WNV isolated from tissue, blood, CSF, other body fluid • IgM antibody to WNV in CSF • 4-fold or greater increase in antibody to WNV in paired serum or CSF samples

Processing of test results

UPHL	IgM- results • Serum: If acute specimen was collected within 8 days of symptom onset, recommend convalescent specimen to be collected 2-4 weeks after acute specimen • CSF: reported as not-a-case IgM+ results • Serum & CSF: re-tested at UPHL and sent to CDC for confirmatory testing (at beginning of season only)

Reference laboratory	IgM- results • Serum: If acute specimen was collected within 8 days of symptom onset, recommend convalescent specimen to be collected 2-4 weeks after acute specimen • CSF: reported as not-a-case IgM+ results • Serum & CSF: re-tested at reference lab and sent to UPHL for further testing (testing at UPHL will cease during season upon validation of reference laboratory results). At the beginning of the season, these results may be forwarded to the CDC for confirmatory testing. IgG- & IgM- results • Serum & CSF: reported as not-a-case IgG+* & IgM- results • Serum: If acute specimen was collected within 8 days of symptom onset, recommend convalescent specimen to be collected 2-4 weeks after acute specimen • CSF: reported as not-a-case

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- The WNV IgM is long lasting: people who have a negative IgM do not have an acute infection due to WNV
- It is difficult to tell if they had a prior WNV exposure as some IgG tests cross-react with other flaviviruses (in other words, they may test positive if someone has had a Yellow Fever vaccine or prior dengue infection)
- If you have a high index of suspicion of WNV infection in these patients, consider retesting for IgM 2-4 weeks after onset.